

REMARKS

1. Declaration

A substitute Declaration that identifies the citizenship of each inventor is submitted concurrently herewith.

2. Claim Rejections

Claim 10 stands rejected under 35 U.S.C. §102(e) as anticipated by U.S. Pat. No. 6,432,260 (“Mahoney”); Claims 1 and 3 – 11 stand rejected under 35 U.S.C. §103(a) as unpatentable over U.S. Pat. No. 6,392,351 (“Shun’ko”) in view of U.S. Pat. No. 6,486,431 (“Smith”). The rejections are respectfully traversed.

a. Rejection over Mahoney

The rejection of Claim 10 over Mahoney continues to draw a correspondence between the claimed plasma generator plate and a plasma processing chamber. This correspondence is at best tenuous. For example, in making the correspondence, the Office Action identifies the first and second sides that are recited in the claim as corresponding to two ends that open into a process chamber (Office Action, p. 3). As clearly shown in Fig. 2 of Mahoney, these openings into the process chamber are all on the top of the chamber so that the Office Action appears to be identifying both the first and second sides as corresponding to the top of the process chamber. It appears that any other interpretation of Mahoney would not read on the claims since the first and second conduits are both required to pass from the first side to the second side.

The Office Action would also like to identify the third conduit recited in the claim with the input gas port 14. As clearly shown in Fig. 1 of Mahoney, the input gas port 14 is

provided in communication with the conduit around one of the transformer cores 9, although Mahoney contemplates that it could alternatively be provided in communication with a gas distribution ring 16 (*see* Mahoney, Col. 6, ll. 40 – 43). Such a configuration plainly fails to meet the claim limitation requiring that the third conduit pass from the first side to the second side. With the identification of the first and second sides supplied by the Office Action, such a limitation would be manifested by having the third conduit pass from the top of the process chamber back to the top of the process chamber; not only is this not disclosed in Mahoney, it would completely defeat the intended function of the input gas port 14 to supply gas from an external source.

The Office Action also dismisses Applicants' previous remark that Mahoney fails to disclose a conduit passing through a transformer core within the plasma generator plate by arguing "that claim 10 does not recite the cores being *within* the chamber" (Office Action, p. 6, emphasis in original) and threatening to withdraw the claim if it is not amended to include this limitation. Applicants emphasize that Claim 10 already recites "a first conduit passing from the first side to the second side through a first transformer core within the plasma generator plate" (emphasis added), a limitation that is already compliant with the request in the Office Action and that distinguishes over Mahoney.

b. Rejections Over Shun'ko and Smith

A *prima facie* case under §103 requires, *inter alia*, that all limitations of the claims be taught or suggested in the cited art and that there be some motivation to modify or combine the teachings as indicated. The rejections over Shun'ko and Smith are deficient in at least both these respects.

First, neither Shun'ko nor Smith teaches or suggests a conduit passing from a first side to a second side of a plasma generator plate and not passing through a transformer core. The conduits disclosed in Shun'ko all pass through a transformer core and Smith discloses only a return path for a current, the return path not passing from a first side to a second side of a plasma

generator plate as the limitation requires. Rather than showing a return path that passes *through* a plasma generating plate as the claims require, Smith shows a plasma chamber 20 that is formed as a tube structure providing a continuous closed path that includes a leg through a center opening of the core for transformer-coupled plasma (*see* Smith, Col. 5, l. 60 – Col. 6, l. 9).

Second, there is no motivation provided to combine Shun'ko and Smith in the manner suggested. The Office Action relies on the use of a return path within a *plasma chamber* as described in Smith being equivalent to the through holes in the *generating plate* recited in the claims. “In order to rely on equivalence as a rationale supporting an obviousness rejection, the equivalency must be recognized in the prior art, and cannot be based on applicant’s disclosure or the mere fact that the components at issue are functional or mechanical equivalents.” MPEP 2144.06. The Office Action fails to provide any evidence that this equivalence has any recognition in the art. Indeed, the plasma-chamber structure taught by Smith is precisely the type of structure that Applicants identified as giving rise to process-uniformity problems as a result of recombination effects on the surface of the plasma chamber (*see* Application, p. 2, l. 34 – Col. 3, l. 14). The use of through holes in a plasma generating plate was discovered by Applicants to significantly improve process uniformity (*see* Application, p. 3, l. 31 – p. 4, l. 1). Thus, rather than the two structures being equivalent, they are actually significantly different, governing the processing of the plasma differently and providing very different recombination effects.

Stated differently, the modification proposed by the Office Action would dramatically change the principle of operation of Smith, a factor that indicates strongly that the modification is *not* obvious. MPEP 2143.01. A plasma chamber configured as a continuous tube structure is integral to the teachings of Smith. Yet the modification proposed in the Office Action would completely do away with that tube structure and instead substitute through holes in a generating plate. The Office Action simply fails to provide any motivation for one to change this principle of operation in the manner suggested.

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CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance and an action to that end is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 303-571-4000.

Respectfully submitted,

Pat M. Boucher
Patrick M. Boucher
Reg. No. 44,037

TOWNSEND and TOWNSEND and CREW LLP
Two Embarcadero Center, 8th Floor
San Francisco, California 94111-3834
Tel: 303-571-4000
Fax: 415-576-0300
PMB:pmb
60025400 v1